

CLAIMS:

1. An eddy current correction method comprising:

calculating a corrective value for eddy current correction for a gradient magnetic field;

if the calculated value does not exceed a predetermined upper limit value, conducting correction on the gradient magnetic field using the calculated value; and

if the calculated value exceeds the predetermined upper limit value, simulating a plurality of gradient magnetic fields affected by eddy current using a plurality of candidate corrective values not greater than the upper limit value, and conducting correction on the gradient magnetic field using a candidate corrective value by which a relatively optimal gradient magnetic field can be obtained.
2. The eddy current correction method of claim 1, wherein said upper limit value is the maximum corrective value that can be output by a gradient power supply.
3. The eddy current correction method of claim 1, wherein said optimal gradient magnetic field is a gradient magnetic field whose length in a flat top portion of a trapezoidal wave is largest.
4. The eddy current correction method of claim 1, wherein said optimal gradient magnetic field is a gradient magnetic field whose waveform area is least different from a waveform area of an ideal gradient magnetic field.
5. The eddy current correction method of claim 1, wherein said plurality of candidate corrective values are determined by sequentially decreasing said calculated value.

6. The eddy current correction method of claim 5, wherein a step difference in said decreasing is constant.

7. The eddy current correction method of claim 5, wherein said candidate corrective values are not lower than a predetermined lower limit value.

8. The eddy current correction method of claim 7, wherein if the optimal gradient magnetic field cannot be obtained, the correction is conducted using said lower limit value.

9. A magnetic resonance imaging apparatus for applying to a subject to be imaged a static magnetic field, a gradient magnetic field and an RF magnetic field generated by static magnetic field generating means, gradient magnetic field generating means and RF magnetic field generating means, respectively, acquiring magnetic resonance signals, and producing an image by image producing means based on the acquired magnetic resonance signals, comprising:

a calculating device for calculating a corrective value for eddy current correction for said gradient magnetic field; and

a correcting device for, if the calculated value does not exceed a predetermined upper limit value, conducting correction on said gradient magnetic field using the calculated value, and if the calculated value exceeds the predetermined upper limit value, simulating a plurality of gradient magnetic fields affected by eddy current using a plurality of candidate corrective values not greater than the upper limit value, and conducting correction on said gradient magnetic field using a candidate corrective value by which a relatively optimal gradient magnetic field can be obtained.

10. The magnetic resonance imaging apparatus of claim 9, wherein said upper limit value is the maximum corrective value that can be output by said gradient magnetic field generating device.

11. The magnetic resonance imaging apparatus of claim 9, wherein said optimal gradient magnetic field is a gradient magnetic field whose length in a flat top portion of a trapezoidal wave is largest.

12. The magnetic resonance imaging apparatus of claim 9, wherein said optimal gradient magnetic field is a gradient magnetic field whose waveform area is least different from a waveform area of an ideal gradient magnetic field.

13. The magnetic resonance imaging apparatus of claim 9, wherein said plurality of candidate corrective values are determined by sequentially decreasing said calculated value.

14. The magnetic resonance imaging apparatus of claim 13, wherein a step difference in said decreasing is constant.

15. The magnetic resonance imaging apparatus of claim 13, wherein said candidate corrective values are not lower than a predetermined lower limit value.

16. The magnetic resonance imaging apparatus of claim 15, wherein if the optimal gradient magnetic field cannot be obtained, said correcting device conducts the correction using said lower limit value.